

authorize use of satellite-based navigation for any phase of flight or airport surface movements. For example, in a recent status report to the aviation industry, the FAA executive responsible for GPS implementation described the FAA's "present position" in the GPS program and set forth the FAA's current plans with respect to augmentation of the system. These plans do not include a single mention of GLONASS. See Dick Arnold, Director, GPS, Communications, Navigation and Surveillance Systems, Federal Aviation Administration, RTCA to FAA -- Report Your Present Position in the GPS Program, RTCA Digest, Jan.-Mar. 1994 (attached hereto together with other documents pertaining to GLONASS as Appendix 8).<sup>30/</sup> In addition, the FAA has recently started a procurement activity that would lead to provision of wide area augmentation of GPS via geostationary satellites, presumably in lieu of GLONASS.

These developments suggest that any plans to authorize use of GLONASS in conjunction with GPS for terminal and approach navigation have been abandoned. Since the concerns with GLONASS-MSS interference entertained during the Negotiated Rulemaking were largely predicated on the possibility of such plans, see NPRM ¶ 55, there does not appear to be any need for an interim sharing plan.<sup>31/</sup> In short, since it appears highly unlikely now

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<sup>30/</sup> The 1992 Federal Radionavigation Plan ("FRP"), released January 1993, devotes a lengthy discussion to the future use of the GPS system and makes only one passing reference of GLONASS as one of several systems with which GPS could be combined. See 1992 Federal Radionavigation Plan, published by the Departments of Transportation and Defense (DOT-VNTS-RSPA-92-2/DOD-4650.5).

<sup>31/</sup> Indeed, the most serious concern expressed in the NRC Report arises in the case of spacings between MSS terminals and  
(continued...)

that GLONASS receivers will have to be protected from interference in the U.S., the FCC should not assume, in assigning licenses to operate MSS systems in the U.S., that GLONASS will impose restraints on the use of the 1619-1626.5 MHz band in the U.S.

## 2. Changes in the GLONASS Frequency Plan

The Commission's confidence that there will be a timely change in the GLONASS frequency plan is also well-justified. First, as the Commission points out, GLONASS-M<sup>32/</sup> has been opposed or commented upon by some forty countries, including the U.S., following its advance publication by the ITU. See NRPM ¶ 55 n.94. GLONASS officials have acknowledged these difficulties and the attendant need for frequency changes in GLONASS-M. See Letter from Drs. Nicolay E. Evanov and Vadim A. Salischev to Larry Chesto (Nov. 4, 1993) (acknowledging that GLONASS "'experiences large difficulties in . . . coordination . . . in a bandwidth higher than 1610 MHz . . . which could probably lead to partial changes in [the] frequency plan of GLONASS'" (as quoted in the NPRM ¶ 57 n.100). Indeed, GLONASS has apparently reached agreement to move to frequencies below

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<sup>31/</sup> (...continued)

GLONASS receivers as close as 100 meters, a scenario that would involve use of GLONASS for approach and terminal communications in the U.S. See NRC Report at 3.3.4.5. If there is no plan to use GLONASS in conjunction with en route navigation above the U.S., interference concerns will be attenuated even further. See id. at 3.3.4.6.4.

<sup>32/</sup> It has been reported by Russian officials that many of the GLONASS spacecraft now in orbit and the ten or more now awaiting launch have the same frequency plan and signal characteristics as described in the GLONASS-M advance publication.

1610 MHz over time with at least two Administrations -- Australia and Japan, as well as with the Inter-Union Commission on Frequency Allocations for Radio Astronomy and Space Science ("IUCAF").<sup>33/</sup> These agreements point to future changes in the GLONASS frequency plan as the most likely course of events. Such changes will minimize, if not entirely eliminate, the possibility of interference from MSS systems into GLONASS receivers.<sup>34/</sup>

The future of GLONASS itself is highly uncertain. A 1993 article reports that General-Colonel of Aviation Anatoly I. Malyukov, the Chief of the Main Staff of Russia's Air Forces, cautioned the aviation community "against greater reliance on GLONASS satellites for future aircraft navigation." The Colonel stated that, before GLONASS can be maintained, "'it must first be created,'" and explained that GLONASS had been left on hold because of lack of funding. See Aviation Week & Space Technology, Mar. 29, 1993, at 21 (Washington Outlook). See also Letter from Larry Chesto, Chairman, SC-159, Requirements and Technical Concepts for Aviation, to Victor Kuranov, Deputy Director of Scientific Experimental Centre of ATC (June 2, 1993) (recognizing "uncertainty about the future of GLONASS") (as quoted in the NPRM ¶ 57 n.100). It should also be noted that, despite the 1982 registration of GLONASS in the ITU's

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<sup>33/</sup> The agreements with Japan and IUCAF are attached at Appendix 8.

<sup>34/</sup> Motorola's own tests as to the susceptibility of GLONASS receivers to MSS interference confirm that with certain minor modifications to the "front end" of those receivers, substantial improvements can be made in their performance which would further reduce the possibility of harmful interference.

International Frequency List, there are now only 12 operational GLONASS satellites in orbit out of the full constellation of 24.

3.     The Commission Can Base Its Decisions on  
the Assumptions It Has Made Concerning GLONASS

Under well-settled principles of federal administrative law, an agency "may apply [its] expertise to draw conclusions from suspected, but not completely substantiated, relationships between facts, from trends among facts, from theoretical projections from imperfect data, from probative preliminary data not yet certifiable as 'fact' and the like." Ethyl Corp. v. EPA, 541 F.2d 1, 28 (D.C. Cir.), cert. denied, 426 U.S. 941 (1976). In addition, an agency's "predictive judgments about areas that are within its field of discretion and expertise" are entitled to "particularly deferential" review. International Ladies' Garment Workers' Union v. Donovan, 722 F.2d 795, 821 (D.C. Cir. 1983), cert. denied, 464 U.S. 820 (1984). Relying on Donovan, the D.C. Circuit in ARINC upheld the Commission's judgment that it would be feasible for AMSC to operate its MSS system despite an international non-interference restriction on U.S. use of the band in question. The court held that "[t]his predictive judgment . . . is of the type which we have historically left to agency discretion." 928 F.2d at 445. See also FCC v. WNCN Listeners Guild, 450 U.S. 582, 594-95 (1981) ("The Commission's decisions must sometimes rest on judgment and prediction rather than pure factual determinations. In such cases complete factual support for the Commission's ultimate conclusions is not required since 'a forecast of the direction in which future public

interest lies necessarily involved deductions based on the expert knowledge of the agency.'") (quoting FCC v. National Citizens Comm. for Broadcasting, 436 U.S. 775, 814 (1978)).

The Commission may thus base its band sharing plan on the well-reasoned assumption that the entire 1610-1626.5 MHz band will be available to Big LEO MSS systems. At most, the Commission should indicate that, if the GLONASS issue has not been fully resolved by 1998, the FCC might reopen and review its band sharing plan. The Commission need address this highly unlikely event only if and when it occurs, and should not allow the licensing of Big LEO MSS systems to be sidetracked by debates over what plan to adopt now if such a remote possibility occurred.<sup>35/</sup>

F. The Commission May Not Use Auctions to Assign Spectrum to Applicants in the LEO MSS Bands

In light of the Commission's band sharing plan, it need not, and may not, use competitive bidding to assign spectrum to the Big LEO MSS applicants. Title VI of the 1993 Omnibus Budget Reconciliation Act empowers the Commission to use competitive bidding only when mutually exclusive applications are accepted for filing for any initial license or construction permit. See

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<sup>35/</sup> Motorola emphasizes again that its IRIDIUM system -- the first of the proposed systems to have secured a substantial part of its financing and (along with LQSS) one of only two systems to have secured any significant outside financing so far -- would not be viable with less than 5.15 MHz of reserved spectrum in the upper portion of the band. Accordingly, any sharing plan that would reserve less than 5.15 MHz for the FDMA/TDMA licensee, including without limitation the plans advanced by Constellation, Ellipsat and TRW, Inc. in their October 8, 1993 pleading, would be unacceptable to Motorola. Motorola supports the Commission's refusal to endorse any such plan.

47 U.S.C.A. § 309(j)(1). The Act emphasizes that the Commission shall not be relieved of its "obligation in the public interest to continue to use engineering solutions, negotiation, threshold qualifications, service regulations, and other means in order to avoid mutual exclusivity in application and licensing proceedings." 47 U.S.C.A. § 309(j)(6)(E). In fact, the legislative history of the Act cites this very proceeding as an example of a case where the Commission should seek to fulfill this obligation by tools such as "spectrum sharing arrangements and the creation of specific threshold qualifications, including service criteria." H.R. Rep. No. 111, 103d Cong., 1st Sess. 258 (1993), reprinted in 1993 U.S.C.C.A.N. 378, 585-86. As the Chairman of the House Committee on Energy and Commerce recently explained in a letter to the Acting Chairman of the Commission, "Congress clearly had the Big LEO proceeding in mind" when it added to the bill the language reasserting the Commission's obligations in the public interest. See Letter from John D. Dingell, Chairman, House Committee on Energy and Commerce, to James H. Quello (Nov. 15, 1993) (attached hereto as Appendix 9). Chairman Dingell further pointed out that "it was never the intent of Congress for auctions to replace" these obligations. Id.

As demonstrated above, the financial and technical qualification requirements proposed by the Commission are precisely the type of legitimate eligibility thresholds that do not raise mutual exclusivity questions. See ARINC, 928 F.2d at 438. Similarly, the spectrum sharing plan proposed by the Commission is the kind of "workable adjustment" that avoids mutual exclusivity under Ashbacker. In these circumstances, the

Commission need not, and is not authorized to, use competitive bidding to assign spectrum in this proceeding. Use of competitive bidding would be an abdication of the Commission's public interest obligations, expressly preserved by 47 U.S.C.A. § 309(j)(6)(E). As Motorola has repeatedly cautioned, use of competitive bidding in this proceeding would be entirely inappropriate even if it were permitted, in view of the Commission's requirement for global service.<sup>36/</sup> MSS auctions would set a disastrous precedent that other administrations would be likely to follow, potentially making it prohibitively expensive for any Big LEO MSS system to provide global service, and thus rendering the Commission's global service requirement a nullity.

G. Lotteries Are An Inappropriate Tool for Licensing Systems in the MSS Bands

Similarly, the notion of a lottery should be abandoned by the Commission. The results of a lottery would bear no relation to the best use of the available spectrum or otherwise to serving the public interest. In a lottery an applicant could end up (indeed, would most likely end up) with band segments that are incongruous, insufficient or unusable by its system.

There would appear to be absolutely no benefit to holding a lottery for assigning spectrum in the LEO MSS Bands. Virtually no time would be saved by conducting a lottery at this

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<sup>36/</sup> See, e.g., Comments and Reply Comments of Motorola in Implementation of Section 309(j) of the Communications Act -- Competitive Bidding, PP Docket No. 93-253 (Nov. 10, 1993 and Nov. 30, 1993).

late stage in the licensing process. Moreover, a lottery could preclude entirely an applicant's superior technology or vision of the marketplace. As the Commission is aware, many of the Big LEO MSS applicants have different marketing plans and propose to serve different groups of users.

**VI.           THE COMMISSION MUST ESTABLISH LIMITS ON OUT-OF-BAND EMISSIONS THAT TAKE INTO ACCOUNT THE CHARACTERISTICS OF THE LEO MSS BANDS AND THE BAND SHARING PLAN**

The NPRM fails to address the important technical question of out-of-band emissions in the LEO MSS Bands and, in particular, the required mask between the CDMA and FDMA/TDMA segments of the 1610-1626.5 MHz band necessary to avoid harmful interference. This is an area of intra-service sharing where the current rules in Part 25 are inadequate to account for the special circumstances arising in the sharing environment of the LEO MSS Bands. Specifically, the current rule on emissions limitations -- § 25.202(f) -- is bandwidth-dependent and insufficient to protect systems in adjacent band segments with varying bandwidths and modulation types, as is the case in the LEO MSS environment, where wideband CDMA systems and narrowband FDMA/TDMA systems would operate alongside each other.

The question of out-of-band emissions is not strictly a question of intra-service sharing. Rather, an effective limitation of such emissions is also needed to protect other services having primary allocations in the band, including the



Radio Astronomy Service ("RAS") as well as the aeronautical mobile-satellite (R) service ("AMSS(R)").<sup>37/</sup>

Motorola has developed a "mask" for out-of-band emissions that would effectively take account of the varying bandwidths and modulation technologies in the LEO MSS Bands as well as protect other primary services in the bands. This mask consists of fixed out-of-band power limits at fixed frequency offsets from the band edge (or the boundary between the LEO MSS band segments). These limits are fixed regardless of the authorized bandwidth of the transmitter, and thus their effectiveness is not impaired by the varying bandwidths that might be encountered in the MSS Bands. Notably, the proposed mask is consistent with terrestrial terminals being designed by CDMA manufacturers such as Qualcomm, Inc. and Motorola.<sup>38/</sup>

The rationale and technical analysis underlying Motorola's recommendations are set forth in the accompanying Technical Appendix. These recommendations are reflected in the following proposed rules. Section 25.202(f) should be amended by adding the following language in the introductory paragraph:

(f) Emission limitations. Except as specified in subsections (g) and (h), the mean power of emissions shall be attenuated below the mean output power of the trans-

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<sup>37/</sup> AMSS(R) has a worldwide primary allocation in the 1610-1626.5 MHz band pursuant to RR 733. As specified in Appendix 2, the Commission's proposed rules should include a definition of this service consistent with the international Radio Regulations, and should make clear that the 1610-1626.5 MHz band is available for use by the uplinks and downlinks of the service.

<sup>38/</sup> Adequate control of out-of-band emissions is also essential for systems sharing the CDMA band segment since unattenuated spurious emissions would result in reduced capacity for all of these systems.

mitter in accordance with the following schedule.

\* \* \* \* \*

New Sections 25.202(g) and (h) should read as follows:

(g) Emission limitations in the 1610-1626.5 MHz band. Earth stations with a maximum antenna gain of 0 dBi at 0° local elevation and 3 dBi at other elevation angles when the transmitter is operated in its normal configuration and attitude. The mean power of emissions shall not exceed the power spectral density limits specified for each area of frequency separations from the band edge or the boundary between the segments of the 1610-1626.5 MHz band assigned respectively to Code Division Multiple Access and Frequency Division Multiple Access/Time Division Multiple Access modulations, as follows:

<u>Frequency Separation</u>	<u>Power Spectral Density</u>
$\Delta f < 125 \text{ kHz}$	-45 dBW/3 kHz
$125 \text{ kHz} \leq \Delta f < 1.25 \text{ MHz}$	-60 dBW/3 kHz
$\Delta f \geq 1.25 \text{ MHz}$	-70 dBW/3 kHz

Where  $\Delta f$  is the frequency separation from the edge of the authorized band segment.

(h) Emission limitations in the 1610-1626.5 MHz band. Earth stations with maximum antenna gain exceeding the limits specified in subsection (g). The mean power of emissions shall not exceed the power spectral density limits specified for each area of frequency separations from the band edge or the boundary between the segments of the 1610-1626.5 MHz band assigned respectively to Code Division Multiple Access and Frequency Division Multiple Access/Time Division Multiple Access modulations, as follows:

<u>Frequency Separation</u>	<u>Power Spectral Density</u>
$\Delta f < 125 \text{ kHz}$	-45 dBW/3 kHz - [10log(G) - 3 dB]
$125 \text{ kHz} \leq \Delta f < 1.25 \text{ MHz}$	-60 dBW/3 kHz - [10log(G) - 3 dB]
$\Delta f \geq 1.25 \text{ MHz}$	-70 dBW/3 kHz - [10log(G) - 3 dB]

Where  $\Delta f$  is the frequency separation from the edge of the authorized band segment, and G is the maximum antenna gain at any elevation angle in dBi.

The recommended limits on out-of-band emissions should also obviate the need for any guardband between band segments, and Motorola concurs with the Commission's decision not to propose such guardbands, which would be an unnecessary waste of limited MSS spectrum. Instead of relying on guardbands, each licensee should be responsible for meeting the limitations on out-of-band emissions prescribed above.<sup>39/</sup>

VII. **THE RULES ON INTER-SERVICE SHARING SHOULD BE REVISED TO AFFORD MSS SYSTEMS ADDITIONAL FLEXIBILITY**

Motorola has already commented on anticipated changes in the GLONASS frequency plan as well as the lack of need to protect GLONASS in the United States. This part of Motorola's comments will be dedicated to discrete recommendations on some of the proposed inter-service sharing rules. The rationale for most of these recommendations is set forth in the accompanying Technical Appendix.

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<sup>39/</sup> While Motorola does not make any specific recommendations regarding spectrum efficiency standards at this juncture, spectrum efficiency may be an appropriate consideration for the Commission's determination of whether a licensee is "fully" using the spectrum for the purpose of canceling a portion of the licensee's assignment. See NPRM ¶ 33 n.66. Motorola reserves the right to recommend efficiency standards in aid of this determination. For now, the Commission should defer the disposition of the question of efficiency standards until it can examine the technical and commercial development of the service. See Amendment of the Commission's Rule to Establish Rules and Policies Pertaining to a Non-Voice, Non-Geostationary Mobile-Satellite Service, 8 FCC Rcd. 8450, 8456 (1993) ("Little LEO Order").

A. Radio Astronomy Service ("RAS")

Motorola submits that the limit on out-of-band emissions proposed in § 25.213(a)(2) is too rigid and would unduly constrain licensees operating in the MSS spectrum above the 1610.6-1613.8 MHz band. As explained in the Technical Appendix, this limit was originally calculated on the basis of many assumptions that are not applicable to Big LEO MSS satellite systems. Among other things, the calculation of RAS interference assumes an immobile interfering source providing a continuous output in the presence of continuum RAS observations. Since LEO satellites are constantly moving and only pass through the main beam of an RAS antenna for limited periods of time, they represent only an intermittent source for interference. Moreover, since RAS observations generally have integration times of about 2,000 seconds, the 10% degradation standard found in CCIR Report 224 can still be met at levels above  $-238 \text{ dBW/m}^2/\text{Hz}$  for LEO MSS systems.<sup>40/</sup> Therefore, at minimum, this value must be adjusted to take into account these factors when considering potential interference from LEO MSS systems.

Instead of stating any specific protection limits in the rules, the Commission should only restate the general obligation in the international Radio Regulations of protecting

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<sup>40/</sup> Although consensus was reached during the negotiated rulemaking on a recommendation relating to the  $-238 \text{ dBW/M}^2/\text{Hz}$  level, no proposed rule was ever agreed to between the NRC participants. Indeed, Motorola's acquiescence to the stated recommendation was predicated upon the assumptions contained in CCIR Report 224.

RAS observations from harmful interference.<sup>41/</sup> Specifically, Motorola recommends the following modification to proposed § 25.213(a)(2):

Mobile-satellite service space stations transmitting in the 1613.8-1626.5 MHz band shall implement such coordination techniques as to avoid harmful interference to the facilities listed in paragraphs (a)(1)(i) and (a)(1)(ii) of this section during periods of observation.

B. Aeronautical Radionavigation Service and Radio-Navigation-Satellite Service

The E.I.R.P. density values set forth in proposed rule § 25.213(c)(1) should be interpreted as triggers for coordination, rather than absolute limits. Exceeding the indicated values would thus trigger the obligation of Big LEO MSS systems to coordinate their operations with affected systems. Casting these limits as coordination triggers will ensure greater flexibility for MSS systems and allow case-by-case resolution of any interference problems.

Proposed § 25.213(c)(1) should accordingly be revised as follows:

In the event that the e.i.r.p. density levels of mobile-satellite earth stations transmitting in the 1610-1626.5 MHz band exceed -15 dB (W/4kHz) on frequencies being used by systems operating in accordance with International Radio Regulation RR 732, or exceed -3 dB (W/4kHz) on frequencies that are not so being used, such earth stations shall coordinate their operations with

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<sup>41/</sup> During the Negotiated Rulemaking, agreement was reached on the coordination of RAS observations during periods of non-peak traffic periods for MSS systems. See NRC Report ¶ 5.1.2(1). These recommendations should also be incorporated in any rules adopted by the Commission on protection of RAS observations.

systems operating in accordance with RR 732, and shall implement such coordination techniques as to avoid harmful interference to such systems. Pursuant to RR 731E and RR 731F, all mobile-satellite operations in the 1610-1626.5 MHz band (both Earth-to-space and space-to-Earth) must be coordinated with systems operating pursuant to RR 732. Such mobile-satellite stations shall not cause harmful interference to, or claim protection from, stations in the aeronautical radio-navigation service and stations operating pursuant to RR 732.

The proposed rule 25.213(c)(3) should also be rephrased to refer to "frequencies used by systems operating in accordance with International Radio Regulation RR 732." This phrasing would follow any changes in the frequency plan of systems, like GLONASS, operating in accordance with RR 732, and would also avoid restricting the operations of MSS systems in frequencies where there are no aeronautical radionavigation systems and hence no need for a more restrictive power flux density limit. This phrasing would also ensure that the more stringent level would become inapposite by its own terms in the event of a change in the GLONASS frequency plan, without need for amendment of the rule. In addition, Section 25.213(c)(3) should be rephrased to clarify that the power flux density figures apply to levels on the Earth's surface.

C. Fixed Stations Operating Pursuant to RR 730

Proposed § 25.213(d) should be reworded to make clear that the coordination obligation is pursuant to Resolution 46 (COM 5/8) and will only be triggered pursuant to the terms of that Resolution.

D. Coordination Between MSS Feeder Links, FSS Systems  
and Point-to-Multipoint Terrestrial Systems

In addition to the modifications proposed by the Commission, other provisions of the rules also need to be modified in order to take into account LEO MSS earth stations. In particular, the calculation of coordination distance contours for LEO stations needs to be aligned to CCIR Recommendation 849. Accordingly, Motorola recommends the following additions and modifications to the rules:

1. In 25.203(b) after the word "authorization," add:  
"in association with a geostationary space station."
2. Change 25.203(c), (d), (e) through (k) to  
25.203(d), (e), (f) through (l) respectively.
3. Establish a new 25.203(c) as follows:  
  
    (c) an applicant for an earth station  
    authorization in association with a non-  
    geostationary space station in a frequency  
    band shared with equal rights with terrestrial  
    microwave services shall compute the coordination  
    contours in accordance with the method prescribed  
    in Recommendation 849 as set forth in the ITU 1992  
    CCIR Recommendations RIS Series Inter-Service  
    Sharing and Compatibility.
4. Modify old (c):
  - i. After the word "applicant," add: "(both non-  
GSO and GSO)."
  - ii. in (c)(1) after "25.255," add: "(where the  
earth station(s) would operate in association  
with a geostationary space station) or ITU-R  
Recommendation 849 (where the earth  
station(s) would operate in association with  
a non-geostationary earth station)."
  - iii. in (c)(2)(vii), (xi) and (xii) after the  
citations to the Commission's rules add: "or  
ITU-R Recommendation 849 as appropriate."

In addition, changed circumstances since the Negotiated Rulemaking have undermined the effectiveness of using geographic

protection areas as a coordination method, which was proposed by the NRC and is reflected in proposed new § 25.203(j). Since the issuance of the NRC Report, Hughes Communications Galaxy, Inc. ("Hughes") has filed an application with the Commission for a broadband FSS system in the 20.0-30.0 GHz bands using small ubiquitous earth terminals.<sup>42/</sup> Such FSS systems will make coordination with Big LEO feeder links by use of geographic protection areas ineffectual.

Similar problems would arise from point-to-multipoint terrestrial services. Motorola's analyses indicate that if the feeder uplinks of the IRIDIUM system had to share the 29.1-29.3 GHz band with terrestrial transmitters of the newly proposed Local Multipoint Distribution Service ("LMDS"), there would be a serious problem of interference into the IRIDIUM system satellite receivers from the cumulative effect of these terrestrial transmitters.

Accordingly, band segmentation appears to be the only feasible method of sharing the Ka-band frequencies between MSS feeder links, GSO satellites and point-to-multipoint terrestrial systems. Of course, band segmentation, along with other alternatives proposed by other parties, should be fully explored in the negotiated rulemaking proposed by the Commission in the LMDS proceeding. See Rulemaking to Amend Part 1 and Part 21 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band and to Establish Rules and Policies for Local Multipoint

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<sup>42/</sup> Hughes' Application was filed on December 3, 1993. Hughes estimates that its proposed system would be capable of serving over 600,000 subscribers. Hughes App. at p. 11.



Distribution Service, CC Docket No. 92-297, RM-7872, RM-7722, Second Notice of Proposed Rulemaking (released Feb. 11, 1994), and Public Notice, released on the same date. Motorola welcomes the Commission's proposal of regulatory negotiation to assist in making assignment policies for the 27.5-30.0 GHz band,<sup>43/</sup> and urges the Commission to reaffirm that it expects from that proceeding a definitive solution to sharing the band among the feeder links of MSS systems, FSS and terrestrial services. See NPRM ¶ 77. The final formulation of § 25.203(j) and (k) may have to await conclusion of this Negotiated Rulemaking proceeding.<sup>44/</sup> However, Motorola wishes to register its support for § 25.203(k)'s reliance on coordination agreements between the operators of the concerned space stations. Such agreements allow flexibility and provide an appropriate framework for coordination between LEO and GSO satellite operations.

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<sup>43/</sup> In its comments supporting the Commission's proposal of regulatory negotiation in the LMDS proceeding, Motorola has also recommended that the Negotiated Rulemaking Committee consider the entire 27.0-31.0 GHz band for possible accommodation of some of the point-to-multipoint services proposed for the 27.5-29.5 GHz band.

<sup>44/</sup> Motorola has some minor comments to § 25.203 (j) and (k) as they currently stand. With respect to § 25.203(j), it is not clear what is meant by the phrase "outside the bands specified in § 25.202(a)(5)." Proposed § 25.202(a)(5) specifies bands for use by the inter-satellite service and does not appear apposite. The reference should instead be "within the bands specified in § 25.202(a)(1)." Similarly, the phrase "a non-geostationary space station or" in the first sentence of proposed § 25.203(k) appears unnecessary. The rule was intended by the NRC to cover applicants for earth stations operating with either GSO or LEO stations. This phrase should be deleted and the other references to space stations in the rule should be eliminated. This would align the rule more closely with the rule proposed by the NRC, see NRC Report ¶ 5.1.3(f). Motorola notes that, with the addition of § 25.203(c) pursuant to its recommendations, § 25.203(j) and (k) would become (k) and (l).

E. Inter-Satellite Service

Motorola agrees with proposed § 25.279, except in one limited respect. Proposed § 25.279(a)(ii) should be amended to require applicants to show that they will not cause "unacceptable" interference to authorized federal government users. This rewording will align the proposed rule to the NRC's consensus proposal. See NRC Report ¶ 5.1.3(g). The public interest does not warrant any departure from that proposal.

F. Earth Terminal Antenna Sidelobe Mask

The obligations imposed by § 25.209(e) and (f) on antennas not conforming to the existing earth terminal antenna sidelobe mask of § 25.209(a) and (b) are inapposite for LEO MSS systems. This mask was developed for use by fixed satellite earth stations operating with communication satellites in the geostationary orbit. The objective was to have GSO systems achieve efficient use of the geostationary orbit and thus make possible 2° spacing. Such a requirement does not pertain to earth stations operating with non-geostationary satellites. The proper mask for such earth stations has not yet been developed. Accordingly, the Commission should take note that a different rule for LEO MSS systems may need to be promulgated once such a mask is developed, or alternatively, a waiver of § 25.209 may be necessary for LEO MSS systems.

VIII.      **THE PROVISION OF BULK SPACE SEGMENT CAPACITY TO PROVIDERS OF COMMERCIAL MOBILE RADIO SERVICES IS NOT COMMON CARRIAGE AS A MATTER OF LAW AND POLICY**

The Commission should determine in this proceeding that the provision of bulk space segment capacity by LEO MSS systems is not common carriage. This determination is consistent with the discretion expressly left to the Commission by the Omnibus Budget Reconciliation Act of 1993, the Commission's decision in the Regulatory Parity proceeding to exercise that discretion, the Commission's determination in the Little-LEO rulemaking proceeding, and the standards of common carriage developed by the courts. Moreover, this determination is mandated by important public interest considerations.

A.      **The Commission Should Rule in This Proceeding that Provision of Bulk Space Segment Capacity By Big LEO MSS Systems Is Not Common Carriage as a Matter of Law**

The 1993 Budget Act defines "commercial mobile service" as "any mobile service . . . that is provided for profit and makes interconnected service available (A) to the public or (B) to such classes of eligible users as to be effectively available to a substantial portion of the public, as specified by regulation by the Commission." 41 U.S.C.A. § 332(d). These services are subject to common carrier treatment under § 332(c)(1)(a). However, the Act further specifies that "[n]othing in this section shall prohibit the Commission from continuing to determine whether the provision of space segment capacity by satellite systems to providers of commercial mobile services shall be treated as common carriage." Id. § 332(c)(5). This

language makes clear that the provision of space segment capacity to commercial providers is not encompassed within the definition of "commercial mobile services," and therefore the requirement of common carrier treatment does not apply to such wholesale provision of space segment capacity. Rather, the Commission has the discretion to determine that such offerings are not common carriage. See also H.R. Conf. Rep. No. 213, 103d Cong., 1st Sess. 494 (1993) (juxtaposing and contrasting the provision of space capacity to commercial providers with the provision of space capacity directly to users of commercial services; clarifying that only the provision of service directly to users falls within section 332(c)(1)(A) and the requirement of common carrier treatment), reprinted in 1993 U.S.C.C.A.N. 1088, 1182.<sup>45/</sup>

In the Second Report and Order in the Parity Proceeding, which was released subsequent to the NPRM, the Commission reaffirmed that it will continue to use its existing procedures to make common carrier determinations in connection with the provision of space segment capacity to commercial service providers and added that it will "extend this treatment to any entity that sells or leases space segment capacity, to the extent that they are not providing CMRS [Commercial Mobile Radio Services] directly to end users." Implementation of Sections 3(n) and 332 of the Communications Act, Second Report and Order,

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<sup>45/</sup> Indeed, space segment capacity supplied to providers of commercial mobile services is not provided either to the public or to "eligible users" of such services within the meaning of § 332, nor is it interconnected with the public switched network. Rather, it is the ground-based gateway operator or service provider who serves end users and interconnects with the PSTN.

GN Docket No. 93-252 ¶ 108 (released Mar. 7, 1994) ("Second Report and Order"). The Commission further ruled that it will determine "the regulatory status of the provision of space segment capacity in the 1.6 and 2.4 GHz bands to CMRS providers" in this proceeding. Id.

Common carrier determinations are generally governed by the standards articulated by the D.C. Circuit in NARUC I, 525 F.2d at 642. The court in NARUC I held that "the characteristic of holding oneself out to serve indiscriminately appears to be an essential element" of common carriage, id. at 642, and established a two-pronged inquiry: "we must inquire, first, whether there will be any legal compulsion thus to serve indifferently, and if not, second, whether there are reasons implicit in the nature of [the service] to expect an indifferent holding out to the eligible user public." Id. To satisfy the first prong of the inquiry, the Commission determines whether there is a public interest reason to require common carriage. To satisfy the second prong, the Commission determines whether the nature of the service involves an indifferent holding out to the public.

There is no public interest reason to compel Big LEO MSS licensees to serve the public indifferently. Such indifferent holding out is unnecessary, because there should be sufficient MSS space segment capacity available from other competitors to ensure that demand for MSS services will be satisfied and that rates will be reasonable without common carrier treatment. The Commission's spectrum sharing plan permits multiple competitive Big LEO MSS space segment operators. Moreover, Big LEO systems will face competition from multiple

Little LEO systems,<sup>46/</sup> as well as regional systems, such as AMSC. Indeed, as will be shown in the next section, not only is there no public interest reason for submitting the provision of bulk MSS capacity to common carriage regulation; public interest and policy considerations mandate non-common carrier treatment.

The second prong of the NARUC I test similarly compels a conclusion that the provision of bulk capacity on Big LEO MSS systems is not common carriage. Such systems supplying bulk capacity will not be holding themselves out to serve the public. Space capacity on the IRIDIUM system, for example, will never be offered directly to the public. Rather, it will be provided on a wholesale basis to the operators of the IRIDIUM system gateways (who in turn may provide services to end users or sell capacity in bulk to service providers, or both). Far from being indiscriminate, the selection of these gateway operators has been proceeding through individual negotiations with particular prospective operators, and in accordance with specific criteria. These long-term relationships will be with relatively few entities, whose number and identity will remain "relatively stable, with terminations and new clients the exception rather than the rule." NARUC I, 525 F.2d at 643. In fact, it would be technically impossible for IRIDIUM system space segment capacity to be offered indifferently to the public because only a small number of gateways in the U.S. and around the world can access the satellites at the same time. Such provision of bulk MSS

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<sup>46/</sup> The Commission's recently adopted service and licensing rules for Little LEOs provide for multiple entry. Little LEOs will compete with Big LEOs in the provision of certain non-voice services.

space segment capacity falls squarely within the definition of private carriage under the first prong of NARUC I.

Applying the NARUC I standards, the Commission has invariably held that the provision of wholesale capacity on satellite and cable facilities to service providers (which may be common carriers) is not common carriage. See Optel Communications, Inc., 8 FCC Rcd. 2267, 2268 (1993) (reconsideration pending) (Commission classified as non-common carrier a cable designed to offer communications to a variety of users, such as private users, common carriers, and government users, on the basis of ownership, Indefeasible Rights of Use or lease); Tel-Optik Ltd., 100 F.C.C.2d at 1046 (the provision of bulk cable capacity under sales or long-term contracts arrived at through individual negotiations with potential customers is not common carriage); Domestic Fixed-Satellite Transponder Sales, 90 F.C.C.2d 1238, 1255-57 (1982) (the sale or long-term lease of domestic satellite transponders by satellite owners does not constitute common carrier activity), aff'd, Wold Communications, Inc. v. FCC, 735 F.2d at 1465 (D.C. Cir. 1984).<sup>47/</sup> The provision of bulk capacity on Big LEO MSS systems to providers of commercial mobile services is indistinguishable from the transactions held not to be common carriage in the foregoing decisions, and qualifies as private carriage under both prongs of the NARUC I test.

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<sup>47/</sup> See also Transgulf Communications, Ltd., 6 FCC Rcd. 2335 (1991); Transnational Telecom Ltd., 5 FCC Rcd. 598 (1990); Pacific Telecom Cable, Inc., 2 FCC Rcd. 2686 (1987).

The Commission has already ruled in the Little LEO rulemaking that Little LEO licensees should not be required to provide system access to CMS providers on a common carriage basis. Little LEO Order, 8 FCC Rcd. at 8456-57. This determination of non-common carriage for the provision of wholesale capacity on Little-LEO systems compels the same conclusion in this rulemaking proceeding.

B. Public Interest and Policy Considerations Require Non-Common Carrier Treatment of The Wholesale Provision of MSS Capacity By Big LEO Systems

There are also strong policy and public interest reasons for treating the sale or lease of bulk MSS capacity by Big LEO systems as non-common carriage. Common carrier treatment would give rise to a host of jurisdictional problems and disparities as well as demand and financing problems, in light of the global nature of LEO MSS systems, their worldwide target markets and the substantial investment required to implement them.

Because of the jurisdictional limitations on the FCC's ability to regulate global MSS systems, submission to common carrier regulation can only apply to part of an MSS system's operation. This may lead to disparate treatment of the jurisdictional and non-jurisdictional operations of an MSS system and possibly to disparate terms and conditions for offering the same service through the same system depending on whether the offering is within, or outside of, the FCC's jurisdiction. Thus, submission to common carrier regulation may lead to the very



discrimination that the common carrier provisions are meant to avoid.

U.S. Big LEO MSS systems will compete with non-U.S. providers that will not be subject to U.S. common carrier regulation and may be subject to little or no oversight by their home administrations. Submission of U.S. systems to excessive regulation will thus handicap them and inhibit their ability to compete with foreign MSS systems.

U.S. MSS system operators must solicit a substantial amount of foreign investment and a number of strategic partners as a result of the global nature of MSS, the need for access to the public switched network outside the U.S., and the substantial investment required for an MSS system. The restrictions of Section 310(b) of the Communications Act on alien ownership of common carrier radio licenses may seriously hamper that effort.

Motorola notes that the Commission can still achieve the regulatory objectives of common carrier regulation and allay any concerns regarding discrimination by regulating U.S. service providers of MSS to the extent they provide "commercial mobile services" within the meaning of the Act. To the extent that a purchaser of bulk MSS capacity provides a service to end users falling within the statutory definition of "commercial mobile service," the Commission should fully exercise its forbearance power under § 332(c)(1) and confirm that such services will be subject to forbearance to the extent specified in the Parity Proceeding. See Second Report and Order ¶¶ 124, 164 et seq.